Patent claims

- A method for controlling a virtual reality (VR) 1. using interactions, 5 system graphics system having a projection device for visualizing virtual three-dimensional scenes and the interactions with the VR graphics system taking place using at least one interaction unit, which is used to detect the respective position 10 and/or orientation of the interaction unit on a spatial trajectory and to generate physical corresponding position data and to transmit these position data to a position detection device of the VR graphics system, characterized in that an 15 initial spatial point on the physical trajectory of the interaction unit is determined, and in that at least one subsequent interaction is evaluated relative to the initial spatial point 20 determined.
- 2. The method as claimed in claim 1, characterized in that reference coordinates are determined using the initial spatial point, the at least one subsequent interaction being evaluated relative to these reference coordinates.
- 3. The method as claimed in claim 1 or 2. characterized in that at least one threshold value or a first threshold value area is formed using 30 the initial spatial point and/or the reference coordinates, at least one action or function of the VR graphics system being triggered when said threshold value or threshold value area is 35 exceeded by the physical spatial trajectory.
 - 4. The method as claimed in claim 3, characterized in that the first threshold value area defines at

least two different threshold values which are used for weighting when the at least one action or function of the VR graphics system is triggered.

claimed in claim 3 5. The method as 5 characterized in that the first threshold value area is formed by a symmetrical three-dimensional body, in particular a sphere, an ellipsoid, a cube, a cuboid or the like.

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The method as claimed in one of claims 1 to 5, 6. characterized in that the initial spatial point and/or the reference coordinates is/are used to form at least one second threshold value area whose value essentially greater than the value of the first threshold value area, shifting of the zero point of the reference coordinates in the trajectory direction of the spatial triggered when said second threshold value area is exceeded by the physical spatial trajectory.

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The method as claimed in one of the preceding 7. claims, characterized in that the initial spatial point is determined using a first interaction.

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8. The method as claimed in claim 7, characterized in that the first interaction takes place using the interaction unit, in particular using a control element which is arranged on the interaction unit, usina a user's acoustic, linguistic gesticulatory interaction.

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The method as claimed in one of the preceding 9. claims for use in a VR graphics system having at least one three-dimensional virtual menu system or function selection system, characterized in that the at least one subsequent interaction is used to control the menu system or the function selection system.

- The method as claimed in claim 9, characterized in 10. that, on account of the first interaction, the 5 menu system or the function selection system is inserted into the virtual scene, with regard to the projection device, on the basis of the viewing direction and/or the head position of a user who holding the interaction unit, in that 10 viewing direction and/or the head position is/are detected continuously or occasionally, and in that the position on the projection device, at which the menu system or the function selection system is/are inserted, is determined on the basis of the 15 direction detected and/or the head viewing position detected.
- 11. The method as claimed in claim 9 or 10, characterized in that an action or function which is to be effected by means of a rotational movement of the interaction unit is triggered only when at least one second interaction is carried out, in particular using the control element.

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12. A three-dimensional user interface for controlling a virtual reality (VR) graphics system using interactions, the VR graphics system having a projection device for visualizing virtual threedimensional scenes and the interactions with the VR graphics system taking place using at least one interaction unit, which is used to detect respective position and/or orientation of the interaction unit on a physical spatial trajectory and to generate corresponding position data and to transmit these position data to a position detection device of the VR graphics characterized by means for generating an initial

spatial point on the physical spatial trajectory of the interaction unit and for evaluating at least one subsequent interaction relative to the initial spatial point determined.

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- 13. The user interface as claimed in claim 12, characterized by means for calculating virtual reference coordinates on the basis of the initial spatial point and for evaluating the at least one subsequent interaction relative to these reference coordinates.
- 14. The user interface as claimed in claim 13, characterized by means for calculating at least one threshold value or a first threshold value area on the basis of the reference coordinates and means for triggering an action or function of the VR graphics system when the threshold value or the first threshold value area is exceeded by the physical spatial trajectory.
- The user interface as claimed in one of claims 12 to 14, characterized by means for calculating at least one second threshold value area on the basis of the reference coordinates, the value of said 25 second threshold value area essentially greater than the value of the first threshold value area, and means for shifting the zero point of the reference coordinates in the direction the of 30 spatial trajectory when the second threshold value is exceeded by the physical area trajectory.
- 16. A virtual reality (VR) graphics system which operates according to the method as claimed in one of claims 1 to 11 and/or which has a user interface as claimed in one of claims 12 to 15.